

**Figure 1. Amino Acid Sequences of Murine 1A6 and Human Consensus Sequences of Heavy Chain Subgroup III (HumIII) and Light Chain  $\kappa$  Subgroup I (Hum $\kappa$ I).**

**V<sub>H</sub> Domain**

Mouse1A6 1 11 21 31 41  
**EVQLQQSGAE LVKPGASLKL SCTASGFNIK DTYIHWMKQR PEQGLEW I GR**  
 \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \*

HumIII EVQLVESGGG LVQPGGSLRL SCAASGFNFS -----WVRQA PGKGLEWVA—

Mouse1A6 51 a 61 71 81 a bc 91  
**IDPANDNTIYD PKVQGKATMT ADTSS NTAYL QLNSLTSEDTAVY YCTT**  
 \* \* \* \* \* \* \* \* \* \* \* \*

HumIII -----A DSVKGRFT IS RDDSKNTAYL QMNSLRAEDTAVY YCTT

Mouse1A6 103 111  
**SGYWFA YWGQGTLVT VSS**

HumIII -----WGQGTLVT VSS

**V<sub>L</sub> Domain**

Mouse1A6 1 11 21 31 41 51  
**DIVLTQSPAT LSVTPGDSVS LSCRASQSI SNNLHWYQQKH SESPRLLIKH ASQ**  
 \* \* \* \* \* \* \* \* \* \* \* \*

Hum $\kappa$ I DIQMTQSPSS LSASVGDRVIT ITC----- WYQQKP GKAPKLLIY --

Mouse1A6 61 71 81 91 101  
**SISG I PS RFSGSGSGTD FTLSINSVET EDFGMFFCQQ SNSWPYTFGG GTKLEIKR**  
 \* \* \* \* \* \* \* \* \* \*

Hum $\kappa$ I ----GVPS RFSGSGSGTD FTLTISSLQP EDFATYYC ----- FGQ GTKVEIKR

The CDR residues as defined by both Kabat and Chothia are shown in boldface.

Fig. 2A

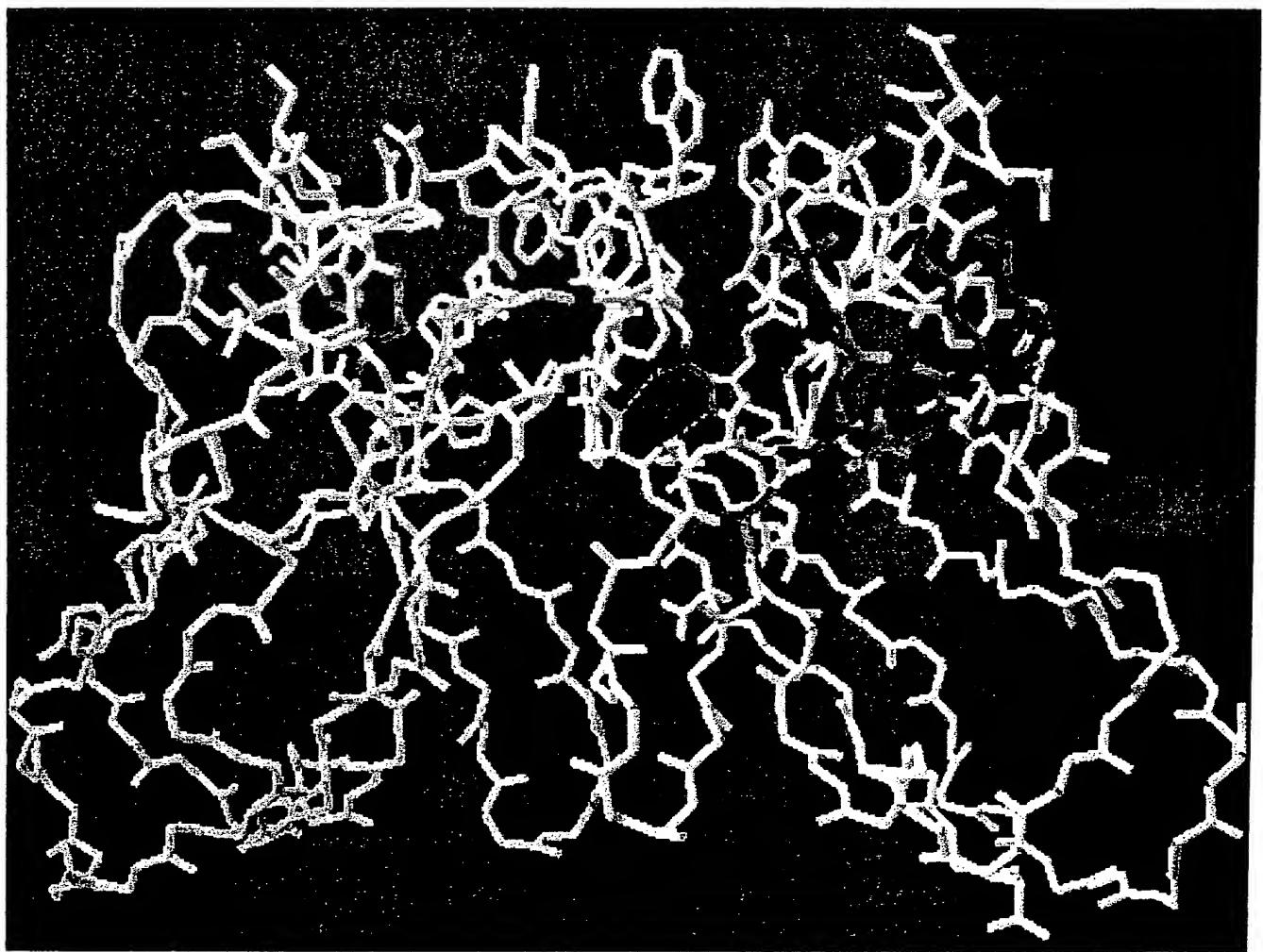
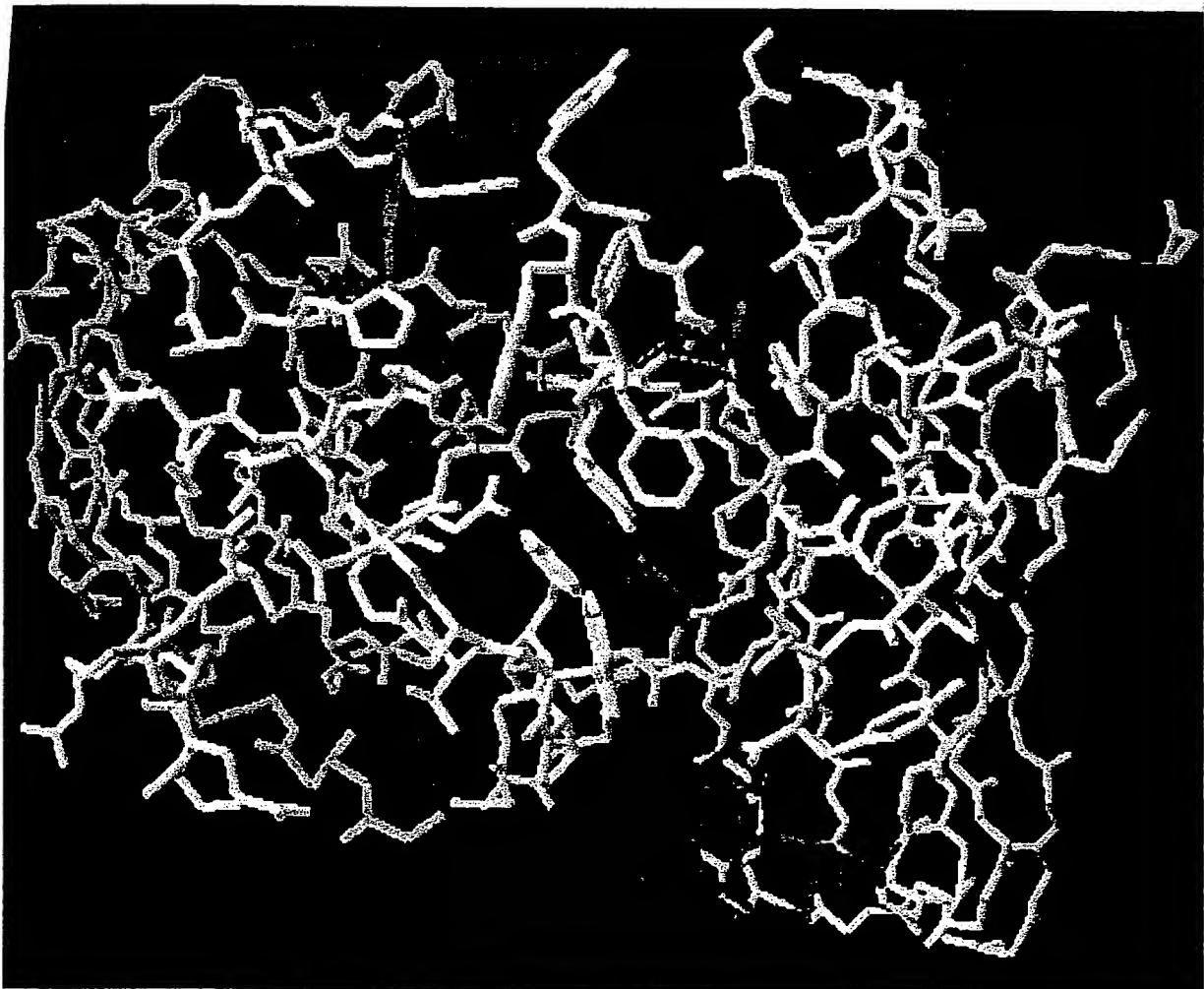


Fig. 2B.



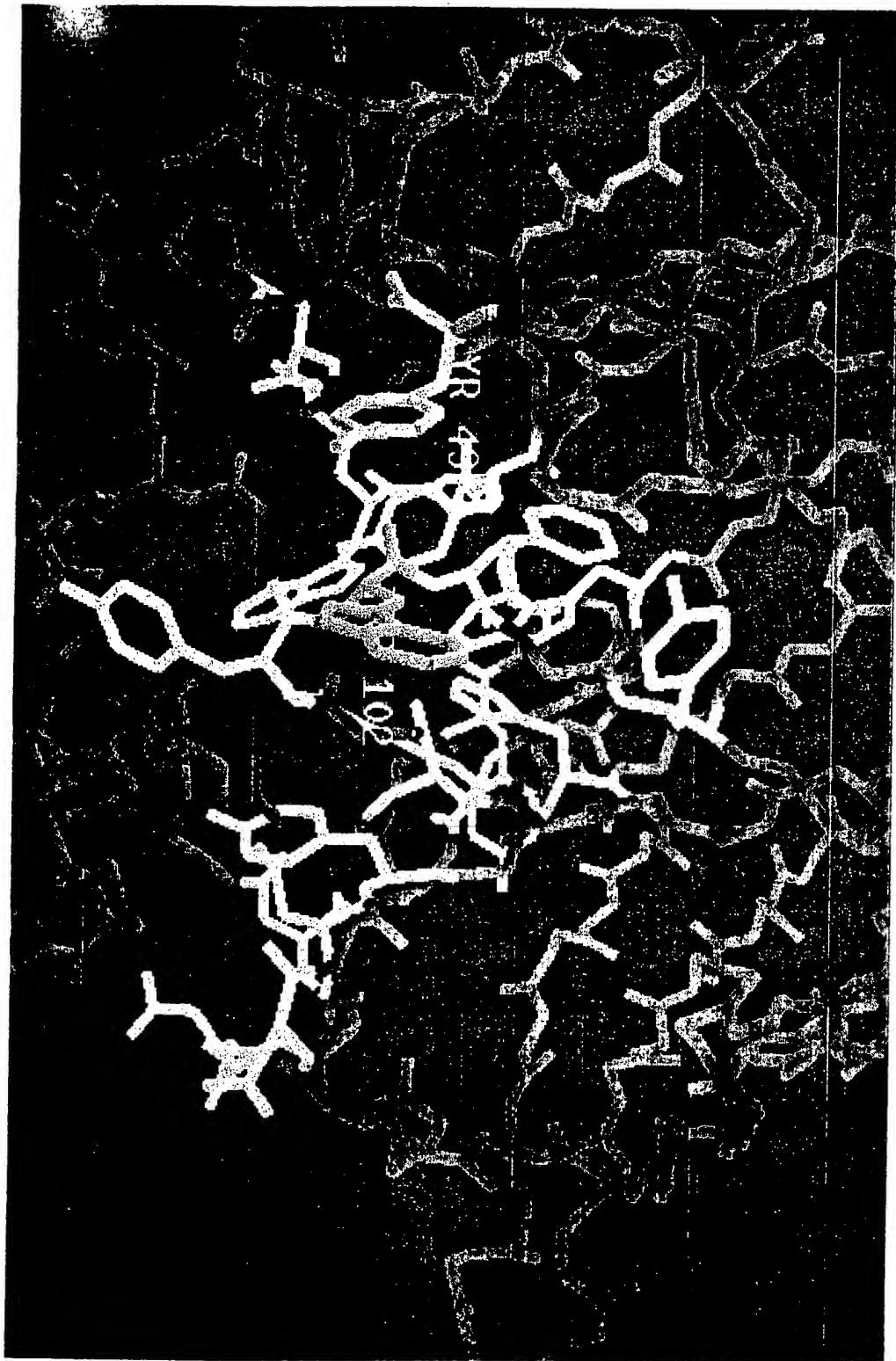


Fig. 2C

**Figure 3. Amino Acid Sequences of Murine 1A6, Humanized 1A6 (Hum19), and Human Consensus Sequences of Heavy Chain Subgroup III (HumIII) and Light Chain  $\kappa$  Subgroup I (Hum $\kappa$ I).**

**V<sub>H</sub> Domain**

	1	11	21	31	41	
Mouse	EVQLQQSGAE	LVKPGASLKL	SCTASGFNIK	DTYIHWMKQR	PEQGLEWI GR	
	***	***	*	*	*	
Hum19	EVQLVESGGG	LVQPGGSLRL	SCAASGFNIK	DTYIHWVRQA	PGKGLEWVAR	
HumIII	EVQLVESGGG	LVQPGGSLRL	SCAASGFNFS	-----	WVRQA	PGKGLEWVA
	51 a	61	71	81 a bc	91	
Mouse	IDPANDNTIYD	PKVQGKATMT	ADTSS NTAYL	QL NSLTSEDTAVY	YCT T	
	***	***	*	*	*	
Hum19	IDPANDNTIYA	DSVKG RFT IS	SDDSKNTAYL	QMNSLRAEDTAVY	YCTA	
			*		*	
HumIII	-----	A DSVKG RFT IS	RDDSKNTAYL	QMNSLRAEDTAVY	YCTR	
	103	111				
Mouse	SGYWFA	YWGQGTLVT	VSS			
Hum19	SGYWFA	YWGQGTLVT	VSS			
HumIII	-----	WGQGTLVT	VSS			

**V<sub>L</sub> Domain**

	1	11	21	31	41	51	
Mouse	DIVLTQSPAT	LSVTPGDSVS	LSCRASQHSIS	NNLHWYQQKH	SESPRLLIKH	ASQ	
	***	**	***	*	***		
Hum19	DIQMTQSPSS	LSASVGDRVT	ITCRASQHSIS	NNLHWYQQKP	GKAPKLLIYH	ASQ	
Hum $\kappa$ I	DIQMTQSPSS	LSASVGDRVT	ITC-----	-----	WYQQKP	GKAPKLLIY	--
	61	71	81	91	101		
Mouse	SISG I PS	RFSGSGSGTD	FTLSINSVET	EDFGMFFCQQ	SNSWPYTFGG	GTKLEIKR	
	*			***	***		
Hum19	SISGVPS	RFSGSGSGTD	FTLTSSLQP	EDFATYYCQQ	SNSWPYTFGG	GTKVEIKR	
Hum $\kappa$ I	---GVPS	RFSGSGSGTD	FTLTSSLQP	EDFATYYC	-----	FGQ	GTKVEIKR

The CDR residues as defined by both Kabat and Chothia are shown in boldface.

**Figure 4. cDNA Sequences of Humanized scFv3 (Hum3) [SEQ ID. 2].**

The restriction sites are underlined. CCATGG NCO I SITE; GGATCC BAMH I SITE; GTAAAC HPA I SITE

CGAACCCATGGGCGATATCcagatgACCCAATCTCCGtctagcCTGAGCgccAG  
TgttGGTgatCGAGTTaccattactTGCCGCGCCAGCCAATCTATCAGTAATAATCTTC  
ACTGGTATCAACAAaaaccggtaaagctCCGaaaCTTCTTATCAAACACGCCCTCAG  
AGCATTAGCGGCgttCCGAGCCGCTCTGGCTCTGGCTCGGGCACGGACTTT  
ACCCTTaccATCAGCTCTttcagccgGAAGACtttGCCaccTATtatTGTCA  
GAGCAGTCTAA  
TAGCTGGCGTATAACCTCGGTcaaGGTACCAAGgtcGAGATTAAGCGCGGCGG  
TGGCGGTTCTGGTGGCggtagcggtagcGGTGGATCCGGTGGCGGTGGCAGCGA  
AGTTCAACTTGTGAGTCTGGTGGCGGTCTGGTTCAGGCTCTGCGCAGCCGGTGGCTCTGC  
GCCTGTCTTGCCGCAGCAAGCGGTTCAACATTAAGGACACCTACATCCATTGG  
atgAGGCAAGCTCCGGTAAGGGTCTGGAGTGGGTGGCACGTATCGACCCGGC  
AAACGACAACACCATTACGATCCGAAGGTGCAGGGCCGTTTACTatgTCTGC  
GGACacCTCTAAGAACACCGCGTACCTTCAGATGAACTCTCGCGTGGCAGG  
ACACCGCCGTACTACTGCACGACCTCTGGCTACTGGTTGCCTACTGGGGC  
CAGGGCACGCTTGTCACCGTCTTCTGGTtAaCCC

**Figure 5. Protection of HRV15 infection by mouse 1A6 scFv (Ms1) and humanized 1A6 scFv proteins (Hs3, 4, 7, 17, 18, 19 and 21).**

